NPIC/TSSG/RED-1806-69
17 September 1969

MEMORANDUM FOR: Chief, Technical Services & Support Group, NPIC

THROUGH : Chief, Research & Engineering Division, TSSG/NPIC

SUBJECT : Effect of Oxygen on Vision

1. I read with considerable interest [redacted] claim of a marked improvement in near vision following inhalation of pure oxygen, primarily because such results are very much at odds with previous research findings. 25X1

2. Miller (1958) for example, conducted a rather thorough and well-controlled investigation of the effects of breathing 100% oxygen upon the visual field and upon visual acuity. His results revealed (p. 602)

> "...no significant depression or constriction of the central (visual) field and no sector defects; the size of the blind spot also remained essentially the same. A lack of significant alterations of the more peripheral isopters* indicated no decreased sensitivity in this region. Central acuity was unchanged, and peripheral acuity of the 100% oxygen-test run at both 5 degrees and 10 degrees (from the fovea) did not differ significantly from that measured during the air-test (control) run (italics mine). The results indicate that vision tested in several regions from zero to sixty degrees suffers no apparent decrement as a result of the breathing of 100% oxygen at atmospheric pressure for a period of over four hours."

3. This office recently contacted Dr. Miller to determine if more current, space-oriented research might have shown advantages to breathing 100% oxygen. He is aware of no evidence to support [redacted] results, and sincerely doubts the existence of such a phenomenon. He suggested that the experimental conditions were somewhat less than adequately controlled, and that motivation, muscular imbalance or other idiosyncratic visual characteristics might well account for the results. Parenthetically, Dr. Miller is actively involved in NASA and USN vision research. 25X1

* Visual areas wherein a small disk is seen as it is moved from the center of the field to a point in the periphery where it is no longer perceived, and vice versa.

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4. I shall further investigate this topic if you believe that there might be something to be gained from doing so. My recommendation, however, would be to "close the books" until such times that similar findings are produced with acceptable research methodologies.

[redacted]
Chief, HFS/ATB/RED/TSSG

25X1

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25X1 NPIC/TSSG/RED/ATB/HFS [redacted] (16 Sept 69)

Miller, E.F. Effect of breathing 100 percent oxygen upon visual field and visual acuity. J. Aviation Med., 1958, 29, 598-602.